

Most Company has an opportunity to invest in one of two new projects. Project Y requires a $350,000 investment for new machinery with a four-year life and no salvage value. Project Z requires a $350,000 investment for new machinery with a three-year life and no salvage value. The two projects yield the following predicted annual results. The company uses straight-line depreciation, and cash flows occur evenly throughout each year

Project Y Project Z

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sales | |  | $ | 395,000 |  |  |  | $ | 325,000 |  |  |
| Expenses | |  |  |  |  |  |  |  |  |  |  |
| Direct materials | |  |  | 55,300 |  |  |  |  | 40,625 |  |  |
| Direct labor | |  |  | 79,000 |  |  |  |  | 48,750 |  |  |
| Overhead including depreciation | |  |  | 142,200 |  |  |  |  | 146,250 |  |  |
| Selling and administrative expenses | |  |  | 28,000 |  |  |  |  | 29,000 |  |  |
|  | |  |  |  |  |  |  |  |  |  |  |
| Total expenses | |  |  | 304,500 |  |  |  |  | 264,625 |  |  |
|  | |  |  |  |  |  |  |  |  |  |  |
| Pretax income | |  |  | 90,500 |  |  |  |  | 60,375 |  |  |
| Income taxes (26%) | |  |  | 23,530 |  |  |  |  | 15,698 |  |  |
|  | |  |  |  |  |  |  |  |  |  |  |
| Net income | |  | $ | 66,970 |  |  |  | $ | 44,677 |  |  |
|  | |  |  |  |  |  |  |  |  |  |  |
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| **1.** | Compute each project’s annual expected net cash flows.   |  | | --- | |  | |  | |  |  |  | | --- | --- | --- | |  | **Project Y** | **Project Z** | | Net income | $66,970 | $44,677 | | Depreciation expense |  |  | |  |  |  | | Expected net cash flows |  |  | | | | | | | | | | | | | |
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| **2.** | Determine each project’s payback period |

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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Payback period** | | | | | | | |  | **Choose Numerator:** | **/** | **Choose Denominator:** | **=** | **Payback period** | | |  | ? | / | ? | = | Payback period | | | Project Y |  |  |  | = | 0 |  | | Project Z |  |  |  | = | 0 |  | |

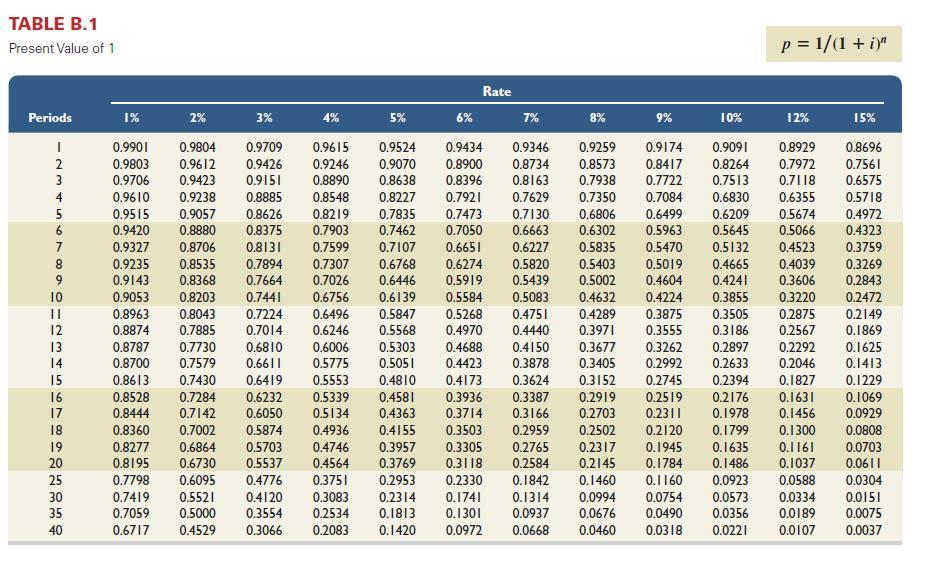
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| **3.** | Compute each project’s accounting rate of return. |

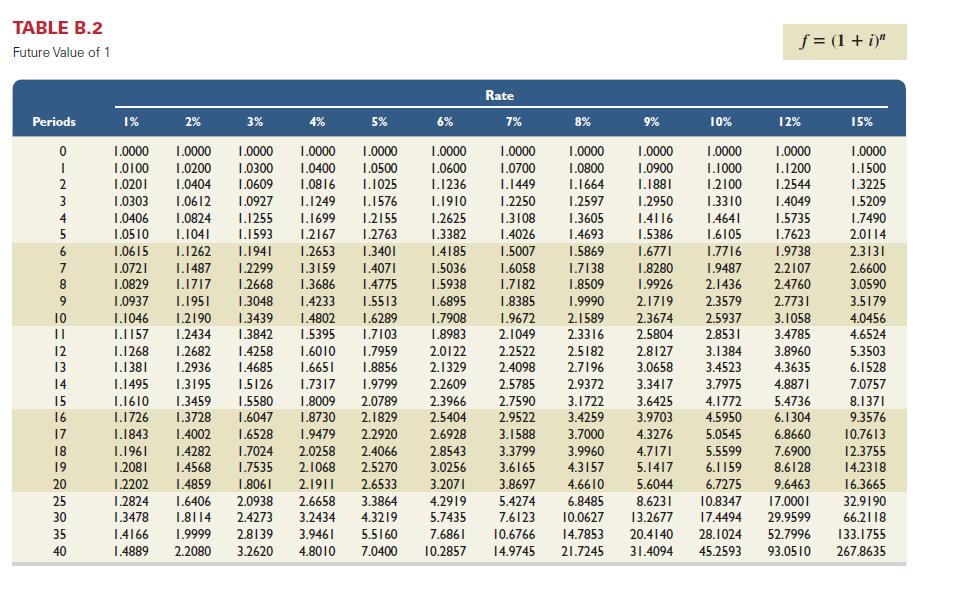
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|  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Accounting rate of return** | | | | | | | |  | **Choose Numerator:** | **/** | **Choose Denominator:** | **=** | **Accounting rate of return** | | |  | ? | / | ? | = | Accounting rate of return | | | Project Y |  |  |  |  | 0 |  | | Project Z |  |  |  |  |  |  | |

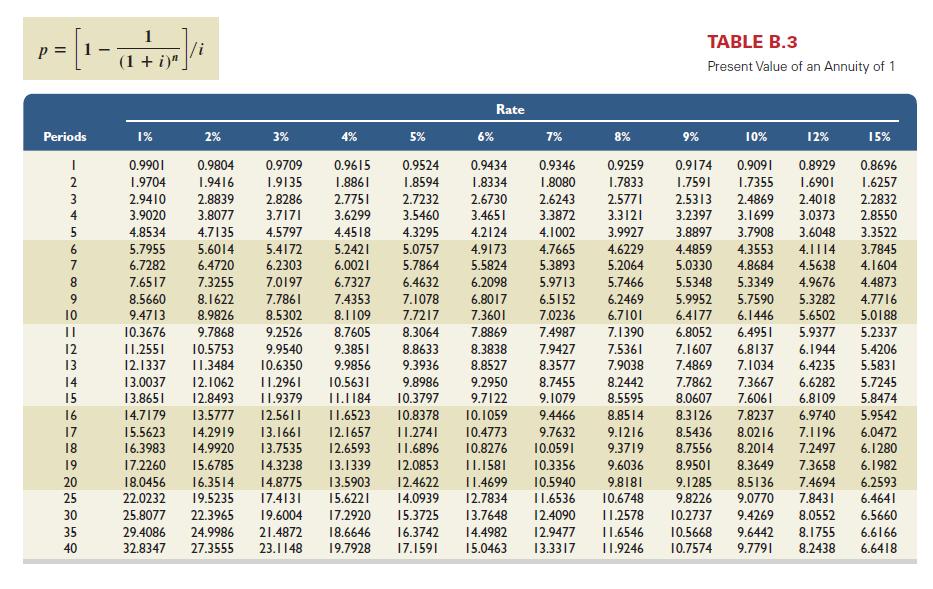
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| **4.** | Determine each project’s net present value using 9% as the discount rate. Assume that cash flows occur at each year-end |

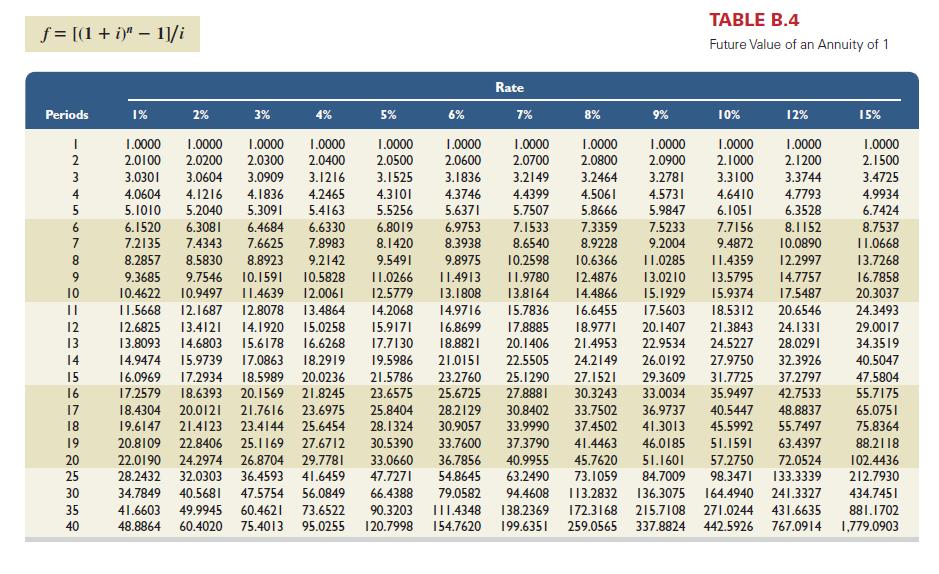
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Project Y** | | | | | |
| **Chart values are based on:** | | | | | |
| *n =* |  |  | | | |
| *i =* |  |
| **Select chart** | **Amount** | **x** | **Table factor** | **=** | **Present Value** |
| ? |  |  |  | = | $0 |
|  | | | | | |
|  | | | |  |  |
|  | | | |  |  |
| Net present value | | | |  |  |
|  | | | | | |
| **Project Z** | | | | | |
| **Chart values are based on:** | | | | | |
| *n =* |  |  | | | |
| *i =* |  |
| **Select chart** | **Amount** | **x** | **Table factor** | **=** | **Present Value** |
|  |  |  |  | = | $0 |
|  | | | | | |
|  | | | |  |  |
|  | | | |  |  |
| Net present value | | | |  |  |

Part 2:









Manning Corporation is considering a new project requiring a $96,500 investment in test equipment with no salvage value. The project would produce $75,000 of pretax income before depreciation at the end of each of the next six years. The company’s income tax rate is 36%. In compiling its tax return and computing its income tax payments, the company can choose between the two alternative depreciation schedules shown in the table.

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| Straight-Line Depreciation | | | | MACRS Depreciation | | | |
| Year 1 |  | $ | 9,650 |  |  | $ | 19,300 |  |
| Year 2 |  |  | 19,300 |  |  |  | 30,880 |  |
| Year 3 |  |  | 19,300 |  |  |  | 18,528 |  |
| Year 4 |  |  | 19,300 |  |  |  | 11,117 |  |
| Year 5 |  |  | 19,300 |  |  |  | 11,117 |  |
| Year 6 |  |  | 9,650 |  |  |  | 5,558 |  |
|  |  |  |  |  |  |  |  |  |
| Totals |  | $ | 96,500 |  |  | $ | 96,500 |  |

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| **1.** | Complete the following table assuming use of straight-line depreciation. Net cash flow equals the amount of income before depreciation minus the income taxes. |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Income Before Depreciation** | **Straight-Line Depreciation** | **Taxable Income** | **Income Taxes** | **Net Cash Flows** | | Year 1 |  |  |  |  |  | | Year 2 |  |  |  |  |  | | Year 3 |  |  |  |  |  | | Year 4 |  |  |  |  |  | | Year 5 |  |  |  |  |  | | Year 6 |  |  |  |  |  |  |  |  | | --- | --- | | **2.** | Complete the following table assuming use of MACRS depreciation. Net cash flow equals the income amount before depreciation minus the income taxes. |  |  | | --- | |  | |  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Income Before Depreciation** | **MACRS Depreciation** | **Taxable Income** | **Income Taxes** | **Net Cash Flows** | | Year 1 |  |  |  |  |  | | Year 2 |  |  |  |  |  | | Year 3 |  |  |  |  |  | | Year 4 |  |  |  |  |  | | Year 5 |  |  |  |  |  | | Year 6 |  |  |  |  |  | | | | |
| **3.** | | Compute the net present value of the investment if straight-line depreciation is used. Use 8% as the discount rate. |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Chart values are based on:** | | | | | | | *i =* |  |  | | | | | **Year** | **Net cash inflow** | **x** | **Table factor** | **=** | **Present Value** | | 1 |  |  |  | = |  | | 2 |  |  |  | = |  | | 3 |  |  |  | = |  | | 4 |  |  |  | = |  | | 5 |  |  |  | = |  | | 6 |  |  |  | = |  | |  | | | | |  | |  | | | | |  | | Net present value | | | | |  | |

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| **4.** | Compute the net present value of the investment if MACRS depreciation is used. Use 8% as the discount rate. |

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|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Chart values are based on:** | | | | | | | *i =* |  |  | | | | | **Year** | **Net cash inflow** | **x** | **Table factor** | **=** | **Present Value** | | 1 |  |  |  | = |  | | 2 |  |  |  | = |  | | 3 |  |  |  | = |  | | 4 |  |  |  | = |  | | 5 |  |  |  | = |  | | 6 |  |  |  | = |  | |  | | | | |  | |  | | | | |  | | Net present value | | | | |  | |